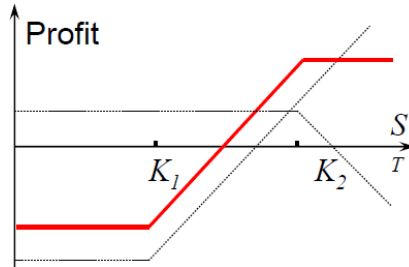


## Assignment 07

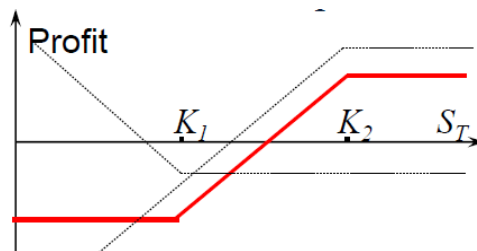
Deliver the work in **ALL** MATLAB, Python, and R.

Consider using all European-style options for the following questions.

1. (2.5 points) Write a function to compute the value of a bull spread
  - a. (1.25 points) Using calls (long a call with strike price  $K_1$  and short a call with strike price  $K_2$ ) using binomial trees (same maturity).



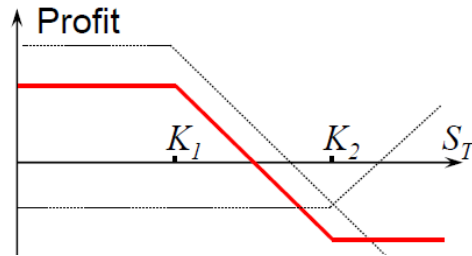
- b. (1.25 points) Using put (long a put with strike price  $K_1$  and short a put with strike price  $K_2$ ) using binomial trees (same maturity).



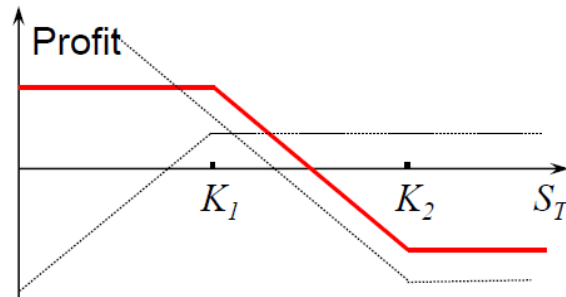
(Hint: derive from the provided code in class)

The function should have a parameter for the calling code to tell the function to use calls or puts. Then you should write code with sample parameters to call the function to get the computed value.

2. (2.5 points) Write a function to compute the value of a bear spread
  - a. (1.25 points) Using calls (short a call with strike price  $K_1$  and long a call with strike price  $K_2$ ) using binomial trees (same maturity).



- b. (1.25 points) Using puts (short a put with strike price  $K_1$  and long a put with strike price  $K_2$ ) using binomial trees (same maturity).



(Hint: derive from the provided code in class)

The function should have a parameter for the calling code to tell the function to use calls or puts. Then you should write code with sample parameters to call the function to get the computed value.

**Note:** Any question should have all the languages to get credits. A Word document MUST accompany the code to FULLY explain your work.